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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,572	07/16/2001	David W. Agar	225/50177	2326
7590 12/16/2003 CROWELL & MORING LLP P.O. Box 14300 Washington, DC 20044-4300			EXAMINER WILLS, MONIQUE M	
			ART UNIT 1746	PAPER NUMBER

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/904,572

**Applicant(s)**

AGAR ET AL.

**Examiner**

Wills M Monique

**Art Unit**

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,6,7,9,10 and 12 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,8,11,13 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Allowable Subject Matter***

Claims 2,3,5,8,11 and 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2 and 3 would be allowable over the prior art of record, because the prior art is silent to a method of operating a fuel cell system as necessitated by claim 1 wherein glycol or diethylene glycol is used as the absorbing agent.

Claims 5 and 11 would be allowable over the prior art of record, because the prior art is silent to a method of operating a fuel cell system as necessitated by claims 1 and 10 respectively, wherein desorbed water is supplied to a reforming stage for at least one of hydrocarbons and alcohols, for producing hydrogen as fuel for the fuel cell system.

Claims 8 and 14 would be allowable over the prior art of record, because the prior art is silent to a method of operating a fuel cell system as necessitated by claims 1 and 10 respectively, wherein a centrifugal reactor is the absorption or desorption unit.

Claim 13 would be allowable over the prior art of record, because the prior art is silent to a method of operating a fuel cell system as necessitated by claim 10, wherein a combined absorption/desorption unit is connected to the fuel cell so that the process is possible by rotation of said unit or cyclical switching over the supply and discharge lines to and from said unit.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,4,6,7,9,10 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walsh U.S. Patent 6,492,044, and further in view of Frank et al. U.S. Patent 6,436,563.

Walsh teaches a fuel cell system having one or more desiccants (abstract). The desiccant is placed in the fuel cell system so that water can sorb to the desiccant (co. 3, lines 50-60). The desiccant may be placed in the cathode gas outlet line to absorb water from the cathode exhaust (col. 4, lines 55-68). The water may subsequently be released from the desiccant by desorption (col. 3, lines 55-60), by passing air above 100°C through the desiccant (col. 6, lines 15-30). In this embodiment, the desiccant provides a continuous absorption/desorption unit. The desiccant may also be located in the cathode gas inlet line and the anode gas inlet/outlet lines (col. 4, lines 60-65). Therefore, providing at least one absorption unit connected to the exhaust air stream and a desorption unit connected to the fuel cell system.

The reference is silent to supplying at least part of the released/desorbed water to the fuel cell system.

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Frank teaches that it is conventional to recycle excess water produced by fuel cells to avoid having to provide a separate water source to humidify the oxidant and/or fuel streams in to the fuel cell system (col. 3, lines 29-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recycle the desorbed water of back into the fuel cell system of Walsh, in order to avoid having to provide a separate water source to humidify the oxidant and/or fuel streams entering the fuel cell system.

### ***Conclusions***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

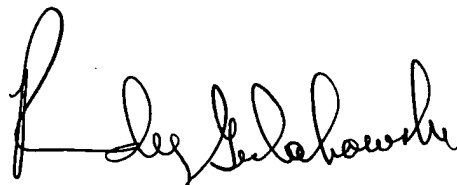
If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 703-308-4333.

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The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

11/28/03

A handwritten signature in black ink, appearing to read "Randy Gulavala". The signature is fluid and cursive, with a large initial "R" and a long, sweeping underline.

RANDY GULAVALA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700